GLOSSARY

Aerobic rice cultivation: *It is a way of growing rice in non-submerged unpuddled condition in aerated soils.*

Agriculture: *The art and science of cultivating crops and rearing domestic animals.*

Aquifer: *It is an underground layer of water-bearing permeable rock, rock fractures or unconsolidated material.*

Back flush: *The process of flowing pressurised water backwards through a filter to remove trapped debris and restore the filtration system for ongoing use.*

Back pressure: *An increase of pressure in the downstream piping system above the supply pressure at a point of consideration, which can cause a reversal of the normal direction of flow.*

Backwash: *A process in which the direction of the flow is reversed so that the water flows upwards through the sand bed.*

Basin irrigation: *It is a type of surface irrigation method, in which the field is divided into a number of checks or basins.*

Border irrigation: *In this type of surface irrigation, the field is divided into a number of borders, which are long and uniformly graded strips of land separated by earth bunds.*

Cavitation: *It is the formation of bubbles or cavities in a liquid, developed in areas of relatively low pressure around an impeller. The imploding of these bubbles triggers intense shockwaves inside the pump, causing significant damage to the impeller or pump housing.*

Centre pivot: *An automated irrigation system, consisting of a sprinkler line, rotating about a pivot point at one end and supported by a number of self-propelled towers.*

Check valve: *It is an in-line valve that allows water to flow in one direction only.*

Clogging: *It is the blocking of drip emitters by silt or other suspended solid matter.*

Coarse grained soil: *Soil containing more than 50 per cent minerals by weight and the size of soil particles is more than 75 micron.*

Contour lines: *These lines are found on a topography map. A contour line is an imaginary line that is obtained by joining the points of constant elevation on the surface of the ground.*

Controller: *It is an automatic timing device that sends an electric signal for automatic valves to open or close, according to a set irrigation schedule.*

Drip irrigation: *A type of microirrigation system that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants.*

Drip lateral: *A water delivery pipeline or Low Linear Density Polyethylene (LLDPE) pipe that supplies water to the emitters from the main lines or sub-mains.*

Elbow: *A small pipe that is used to make a 90 or 45 degree turn in a water line.*

Electrical solenoid valve: *An electro-mechanical device, in which the solenoid uses electric current to generate a magnetic field, thereby, operating a mechanism that regulates the opening of water in a valve.*

Emitter: *An irrigation device moulded from plastic and designed to deliver precise amounts of water to particular areas.*

Evaporation: *The process by which water changes into vapour.*

Evapotranspiration: *The water lost from the soil and plants through the processes of evaporation and transpiration in a combined form.*

Fertigation: *The application of fertilisers, plant nutrients or amendments through an irrigation system.*

Fertiliser: *An organic or inorganic material, either natural or synthetic, used to supply elements, such as nitrogen, phosphate, potash, etc., which is essential for plant growth.*

Field capacity: *The depth of water retained in the soil after draining the gravitational water. This stage is, normally, reached after 1–3 days after irrigation or rain. It is expressed as the depth of water in inch or foot. It is also called 'field moisture capacity'.*

Flood irrigation: *A surface irrigation method, in which a field is essentially flooded with water that is allowed to soak into the soil to irrigate the plants.*

Flow control valve: *A device that controls or regulates the flow or pressure of a liquid.*

Flow rate: *The rate of flow or volume per unit period of time.*

Flushing: *It involves opening the ends of a pipe system and using an appropriate velocity to flush sediment and algae built up in sub-mains or tubes.*

Flush valve: *A fitting that empties water lines upon shutdown.*

Friction loss: *It is a drop in pressure as water moves through tubing due to friction in a pipeline.*

Furrow irrigation: *An irrigation method where water flows down in small trenches running between crops.*

Gravity flow: *A flow of water drawn through a conduit under the force of gravity.*

Gravity irrigation: *An irrigation method, in which water pressure is generated by elevation.*

Groundwater: *It is the water below the Earth's surface. Water stored in an aquifer is also called groundwater.*

Hazard: *The danger that an injury will occur with the use of an equipment, chemical or pesticide, etc.*

Horsepower: *The power of an engine is measured in terms of horsepower. It is equal to 550 foot-pound per second (about 745.7 watts).*

Impeller: *A rotating component equipped with vanes or blades used in turbo machinery, such as centrifugal pump.*

Infiltration: *The process of water movement through the soil surface into the soil matrix.*

Infiltration rate: *The velocity or speed at which water permeates into the soil. It is, usually, measured by the depth (in mm) of water layer that enters the soil in one hour.*

Irrigation frequency: *It is the measure of the number of irrigation applied per unit time.*

Irrigation interval: *The average interval between the commencement of successive irrigations in a field or an area.*

Irrigation schedule: *The schedule that decides when to irrigate a land and how much water to apply as per the measurement or estimate of soil moisture or crop water used by a plant.*

Irrigation system: *It includes the water source, water distribution network, control components and irrigation equipment.*

Laterals or lateral pipes: *Pipes used for conveying water from sub-main lines in case of drip irrigation, while in sprinkler irrigation, sprinklers are mounted on these pipes.*

Leaching: *Loss of water soluble plant nutrients from the soil.*

Main line: *A pipe that supplies water from the point of connection to the control valves.*

Mesh filtration: *A process that uses mesh filters or mesh screens to filter water.*

Microirrigation: *An irrigation system with small, closely spaced outlets used to apply small amounts of water at low pressure.*

Mist irrigation: *An irrigation method, in which water is applied in the form of small droplets.*

Mister: *An emitter designed to 'atomise' water into fog or heavy mist.*

Net Positive Suction Head: *It is defined as the difference between the suction head and liquid vapour head.*

Orifices: *A submerged opening with a closed perimeter through which water flows.*

Perennial crops: *Plants having a life cycle of more than two years.*

Peri-urban agriculture: *Agriculture done in places on fringes of urban areas.*

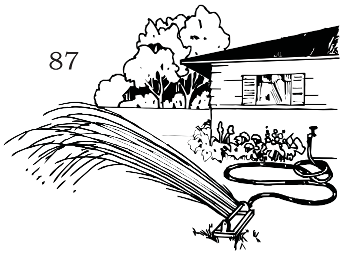
pH: *Negative logarithms of H+ ion concentration of a given solution.*

Pitting corrosion: *A type of corrosion that occurs in material having protective films.*

Pre-plant irrigation: *Pre-plant irrigation supplies moisture to the root zone of a plant prior to planting.*

Pressure gauge: *A device used for measuring the pressure of water.*

Pressure regulator: *A device used to reduce the incoming water pressure, which can be high for a drip irrigation system.*



Pressurised irrigation: *An irrigation system, in which water is conveyed to and distributed over a farmland through a network of pressurised pipes.*

Priming: *A process in which the impeller of a centrifugal pump is fully submerged in liquid without any air trapped inside.*

Pump: *A device that discharges a fluid by increasing the pressure.*

Root zone: *The depth of soil up to which the plant roots readily penetrate, and in which predominant root activity takes place.*

Run-off: *It is the downward movement of rainwater or surface water under gravity in channels ranging from small rills to large rivers.*

Screen filter: *A filter utilising fine mesh screens to remove particles from flowing water.*

Sediment: *Solid fragments of inorganic or organic material that come from the weathering of rocks and are carried and deposited by wind, water or ice.*

Shim: *A thin packing strip or washer often used with a number of similar washers or strips to adjust a clearance for gear.*

Shut-off valve: *A device used to shut off the water supply.*

Soil crusting: *A thin layer of dense and tough material formed when clay particles are splattered across the soil surface as rainwater spreads. The clay is filtered on to the surface and forms a hard crust.*

Soil texture: *The percentage share of sand, silt and clay in soil.*

Solenoid: *Coil of wire used as an electromagnet.*

Solenoid valve: *An electro-mechanical device, in which the solenoid uses electric current to generate a magnetic field and operate a mechanism that regulates liquid flow in a valve.*

Spout: *A tube-shaped opening that allows liquids to be poured out of a container.*

Sprinkler irrigation: *An irrigation method, in which water is sprayed or sprinkled in the air, which falls on the ground surface.*

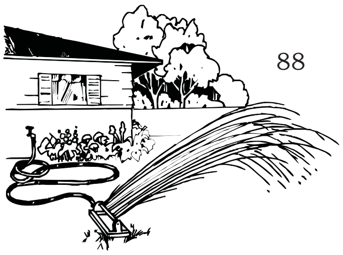
Sub-irrigation: *The application of irrigation water below the ground surface either by raising the water table within or near the root zone or by using a buried perforated or porous pipe system that discharges water directly into the root zone.*

Sub-mains: *Pipes that are laid on both sides of the main line.*

Sub-surface drip irrigation: *A drip irrigation technique, in which the application of water is done below the soil surface through emitters.*

Surface irrigation: *The application of water on land by surface flow.*

Surface sealing: *The permanent covering of the soil surface with an impermeable material. The drying of surface sealing results in soil crusting, which may hinder the germination of seeds.*



Surface soil: *The upper part of the soil mass about 10–20 cm in thickness.*

Surface water: *It refers to an open water body like river, stream or lake.*

Sustainable agriculture: *A systematic approach to agriculture that focuses on ensuring long-term productivity through the use of natural resources for meeting food and fibre needs.*

Timer: *An automatic timing device that sends an electric signal to open or close valves by a set irrigation schedule.*

Topography: *The study of the shape and features of land surfaces. It refers to the slope of the ground and how much uneven or levelled it is.*

Topographic map: *A map that contains information about the topography of an area. It includes contours lines, location of natural features like gullies, ditches and location of man-made features, such as buildings, roads, culverts, bridges, etc. These are needed for detailed planning of irrigation method.*

Tortuous: *It means full of twists and turns.*

Transplanting: *The process of shifting a plant from one place to another.*

Valve: *A device that controls the flow of liquid within a system.*

Vane: *A broad blade of a machine or device attached to a rotating axis or wheel which pushes wind or water.*

Vortexes: *A circular, spiral, or helical motion in a fluid.*

Water application efficiency: *It is expressed as the percentage of the total volume of water delivered to a field that is stored in the root zone of plants to meet the crop evapotranspiration needs.*

Water hammer: *It is a pressure surge caused when water in motion is forced to stop or change direction.*

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